AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Withdrawn – Previously Presented): An optical communication module that emits laser light having a wavelength depending on temperature and power intensity, comprising:

a laser light emitting unit that emits the laser light;

a temperature control unit that controls the temperature of the laser light emitting unit;

a power intensity control unit that controls the power intensity of the laser light emitted from the laser light emitting unit; and

a setting value storage unit that stores a setting value determined from an optimum power intensity that maintains a predetermined wavelength and satisfies a predetermined temperature range and a predetermined power intensity range, and from an optimum temperature that maintains the predetermined wavelength and satisfies the predetermined temperature range and the predetermined power intensity range;

the temperature control unit and the power intensity control unit controlling the temperature and the power intensity of the laser light emitting unit, based on the setting value stored in the setting value storage unit, so that the laser light emitting unit can be operated within the predetermined temperature range and the predetermined power intensity range even when the laser light emitting unit does not have the optimum power intensity.

2. (Withdrawn): The optical communication module as claimed in claim 1, wherein:

the laser light emitting unit can vary wavelengths; and

the setting value storage unit stores a setting value for each of the wavelengths.

3. (Withdrawn): The optical communication module as claimed in claim 1, comprising two or more laser light emitting units, each of which being the same as the laser light emitting unit, two or more temperature control units, each of which being the same as the temperature control unit, and two or more power intensity control units, each of which being the same as the power intensity control unit.

4. (Withdrawn): The optical communication module as claimed in claim 1, wherein:

the temperature control unit includes a temperature sensor provided in a laser module into which laser diodes are incorporated, a cooling/heating device provided in the laser module, and a temperature drive circuit for driving the cooling/heating device so that a temperature detected by the temperature sensor satisfies the setting value; and

the power intensity control unit includes a photodetector provided inside and/or outside the laser module, a laser drive circuit for inputting drive current to the laser diodes, and a power intensity control circuit for controlling the laser drive circuit so that a power intensity detected by the photodetector satisfies the setting value.

5. (Withdrawn – Previously Presented): A wavelength locker module that causes laser light emitted from a laser module to maintain a predetermined wavelength, comprising:

a temperature control unit that controls the temperature of the laser module;

a power intensity control unit that controls the power intensity of the laser light emitted from the laser module; and

a setting value storage unit that stores a setting value determined from an optimum power intensity that maintains the predetermined wavelength and satisfy predetermined temperature conditions and predetermined power intensity conditions, and from an optimum temperature that maintains the predetermined wavelength and satisfy the predetermined temperature conditions and the predetermined power intensity conditions,

the temperature control unit and the power intensity control unit controlling the temperature and the power intensity of the laser module, based on the setting value stored in the setting value storage unit, to thereby cause the laser light to maintain the predetermined wavelength, so that the laser module can be operated within the predetermined temperature range and the predetermined power intensity range even when the laser module does not have the optimum power intensity.

6. (Withdrawn): The wavelength locker module as claimed in claim 5, wherein:

the laser module includes a variable-wave laser; and

the setting value storage unit stores a setting value for each wavelength.

7. (Withdrawn): The wavelength locker module as claimed in claim 5, comprising two or more temperature control units, each of which being the same as the temperature control

unit, and two or more power intensity control units, each of which being the same as the power intensity control unit.

8. (Withdrawn): The wavelength locker module as claimed in claim 5, wherein:

the temperature control unit includes a temperature monitor circuit for monitoring the temperature of the laser module based on a temperature sensor provided in the laser module, a cooling/heating device drive circuit for driving a cooling/heating device provided in the laser module, and a temperature control circuit for controlling the cooling/heating device drive circuit so that the temperature monitored by the temperature monitor circuit satisfies the setting value; and

the power intensity control unit includes a photodetector provided inside and/or outside the laser module, a laser drive circuit for inputting drive current to laser diodes, and a power intensity control circuit for controlling the laser drive circuit so that a power intensity detected by the photodetector satisfies the setting value.

9. (Currently Amended): A setting value generating device that generates such a setting value that causes laser light emitted from a laser module to have a predetermined wavelength by wavelength tuning using a wavelength locker module in a measurement system and satisfies predetermined temperature conditions and predetermined power intensity conditions, the setting value generating device comprising:

an optimum power intensity calculating unit that calculates an optimum power intensity setting range in which the power intensity can be adjusted while the predetermined wavelength is maintained, the optimum power intensity setting range being a continuous part of a predetermined power intensity variable range;

an optimum temperature calculating unit that calculates an optimum temperature setting range in which the temperature can be adjusted while the predetermined wavelength is maintained, the optimum temperature setting range being a continuous part of a predetermined temperature variable range; and

a setting value generating unit that generates the setting value based on both the optimum power intensity setting range calculated by the optimum power intensity calculating unit and the optimum temperature setting range calculated by the optimum temperature calculating unit, wherein

the laser module can be operated <u>in a normal operation</u> with the setting value that is located within both the continuous part of the predetermined temperature setting range and the continuous part of the predetermined power intensity setting range and has a power different from a center value of the predetermined power intensity variable range even when the laser module operates outside of the predetermined temperature variable range at the center value of the predetermined power intensity variable range while the laser light is kept at the predetermined wavelength.

10. (Previously Presented): The setting value generating device as claimed in claim 9, further comprising:

a relational expression defining unit that defines a relational expression between a temperature and a power intensity that causes the laser module to maintain the predetermined wavelength; and

a power intensity upper and lower limit calculating/defining unit that calculates or defines an upper limit value and a lower limit value of a power intensity that satisfies the relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range, wherein:

the optimum power intensity calculating unit calculates the optimum power intensity that is the middle value between the upper limit value and the lower limit value of the power intensity defined by the power intensity upper and lower limit calculating/defining unit; and

the optimum temperature calculating unit substitutes the optimum power intensity calculated by the optimum power intensity calculating unit in the relational expression defined by the relational expression defining unit, to thereby calculate the optimum temperature.

11. (Original): The setting value generating device as claimed in claim 10, wherein:

the laser module can vary wavelengths; and

the setting value is generated in relation with each of the wavelengths.

12. (Previously Presented): The setting value generating device as claimed in claim 9, the laser module being able to vary wavelengths, further comprising:

a shortest wavelength relational expression defining unit that defines a shortest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a shortest predetermined wavelength:

a longest wavelength relational expression defining unit that defines a longest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a longest predetermined wavelength;

a power intensity upper limit value calculating/defining unit that calculates or defines an upper limit value of a power intensity that satisfies the shortest wavelength relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range; and

a power intensity lower limit value calculating/defining unit that calculates or defines a lower limit value of a power intensity that satisfies the longest wavelength relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range, wherein:

the optimum power intensity calculating unit calculates the optimum power intensity, which is the middle value between the upper limit value of the power intensity determined by the power intensity upper limit value calculating/defining unit and the lower limit value of the power intensity determined by the power intensity lower limit value calculating/defining unit;

the optimum temperature calculating unit calculates the optimum temperature with respect to the shortest predetermined wavelength and/or the longest predetermined wavelength by substituting the optimum power intensity, calculated by the optimum power intensity calculating unit, in the shortest wavelength relational expression and/or the longest wavelength relational expression; and

the setting value generating unit generates the setting value for all predetermined wavelengths, based on the optimum power intensity and the optimum temperature calculated with respect to the shortest predetermined wavelength or the longest predetermined wavelength.

13. (Original): The setting value generating device as claimed in claim 9, further comprising

a setting value storage unit that stores the setting value generated by the setting value generating unit, wherein:

the laser module contains unique identification information; and

the setting value storage unit relates the setting value to the unique identification information, and stores the setting value.

14. (Currently Amended): A method of generating a setting value in an information processing device that generates such a setting value that causes laser light emitted from a laser module to have a predetermined wavelength, and satisfies predetermined temperature conditions and predetermined power intensity conditions, the method comprising the steps of:

calculating an optimum power intensity setting range in which the power intensity can be adjusted while the predetermined wavelength is maintained, the optimum power intensity setting range being a continuous part of a predetermined power intensity variable range;

calculating an optimum temperature setting range in which the temperature can be adjusted while the predetermined wavelength is maintained, the optimum temperature setting range being a continuous part of a predetermined temperature variable range; and

generating the setting value based on both the optimum power intensity setting range and the optimum temperature setting range calculated in the foregoing steps unit, wherein

the laser module can be operated in a normal operation with the setting value that is located within both the continuous part of the predetermined temperature setting range and the continuous part of the predetermined power intensity setting range and has a power different from a center value of the predetermined power intensity variable range even when the laser module cannot operate within the predetermined temperature variable range at the center value of the predetermined power intensity variable range while the laser light is kept at the predetermined wavelength.

15. (Previously Presented): The method as claimed in claim 14, further comprising the steps of:

defining a relational expression between a temperature and a power intensity that causes the laser module to maintain the predetermined wavelength; and

calculating or defining an upper limit value and a lower limit value of a power intensity that satisfies the relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range, wherein:

the step of calculating the optimum power intensity includes calculating the middle value between the upper limit value and the lower limit value of the output value, the middle value being the optimum power intensity; and

the step of calculating the optimum temperature includes substituting the optimum power intensity in the relational expression, to thereby obtain the optimum temperature.

16. (Original): The method as claimed in claim 15, wherein:

the laser module can vary wavelengths; and

the setting value is generated in relation with each of the wavelengths.

17. (Previously Presented): The method as claimed in claim 14, the laser module being able to vary wavelengths, further comprising the steps of:

defining a shortest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a shortest predetermined wavelength;

defining a longest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a longest predetermined wavelength;

calculating or defining an upper limit value of a power intensity that satisfies the shortest wavelength expression and also satisfies the predetermined temperature range and the predetermined power intensity range; and

calculating or defining a lower limit value of a power intensity that satisfies the longest wavelength relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range, wherein:

the step of calculating the optimum power intensity includes calculating the middle value between the upper limit value of the power intensity determined in the step of calculating or defining the power intensity upper limit value, and the lower limit value of the power intensity determined in the step of calculating or defining the power intensity lower limit value, the middle value representing the optimum power intensity;

the step of calculating the optimum temperature includes substituting the optimum power intensity, calculated in the step of calculating the optimum power intensity, in the shortest wavelength relational expression and/or the longest wavelength relational expression, to thereby calculate the optimum temperature with respect to the shortest predetermined wavelength and/or longest predetermined wavelength; and

the step of generating the setting value includes generating the setting value for all predetermined wavelengths, based on the optimum power intensity and the optimum temperature calculated with respect to the shortest predetermined wavelength or the longest predetermined wavelength.

18. (Original): The method as claimed in claim 14, the laser module containing unique identification information, the method further comprising the step of storing the setting value that is related to the unique identification information.

19. (Currently Amended): A program product on a recording medium ~~for~~ causing a computer to generate a setting value that causes laser light emitted from a laser module to have a predetermined wavelength and satisfies predetermined temperature conditions and predetermined power intensity conditions, the program product comprising:

instructions for calculating an optimum power intensity setting range in which the power intensity can be adjusted while the predetermined wavelength is maintained, the optimum power intensity setting range being a continuous part of a predetermined power intensity variable range;

instructions for calculating an optimum temperature setting range in which the temperature can be adjusted while the predetermined wavelength is maintained, the optimum temperature setting range being a continuous part of a predetermined temperature variable range; and

instructions for generating the setting value based on both the optimum power intensity setting range calculated in accordance with the optimum power intensity calculating instructions, and the optimum temperature setting range calculated in accordance with the optimum temperature calculating instructions unit, wherein

the laser module ~~can be operated~~ is configured to operate in a normal operation with the setting value that is located within both the continuous part of the predetermined temperature

setting range and the continuous part of the predetermined power intensity setting range and has a power different from a center value of the predetermined power intensity variable range even when the laser module cannot operate within the predetermined temperature variable range at the center value of the predetermined power intensity variable range while the laser light is kept at the predetermined wavelength.

20. (Previously Presented): The program product as claimed in claim 19, further comprising:

instructions for defining a relational expression between a temperature and a power intensity that causes the laser module to maintain the predetermined wavelength; and

instructions for calculating or defining an upper limit value and a lower limit value of a power intensity that satisfies the relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range, wherein

the optimum power intensity calculating instructions include an instruction for calculating the middle value between the upper limit value and the lower limit value of the power intensity calculated in accordance with the instructions for calculating or defining the power intensity upper and lower values, the middle value being the optimum power intensity; and

the optimum temperature calculating instructions include an instruction for substituting the optimum power intensity, calculated in accordance with the instructions for calculating the optimum power intensity, in the relational expression defined in accordance with the instructions for defining the relational expression.

21. (Original): The program product as claimed in claim 20, further comprising instructions for generating the setting value in relation to each predetermined wavelength that the laser module can have, the laser module being able to vary wavelengths.

22. (Previously Presented): The program product as claimed in claim 19, further comprising:

instructions for defining a shortest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a shortest predetermined wavelength;

instructions for defining a longest wavelength relational expression that represents the relationship between a temperature and a power intensity for causing the laser module to maintain a longest predetermined wavelength;

instructions for calculating or defining an upper limit value of a power intensity that satisfies the shortest wavelength relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range; and

instructions for calculating or defining a lower limit value of a power intensity that satisfies the longest wavelength relational expression and also satisfies the predetermined temperature range and the predetermined power intensity range,

the computer executing all the forgoing instructions, wherein:

the optimum power intensity is calculated as the middle value between the upper limit value of the power intensity determined in accordance with the instructions for calculating or defining the power intensity upper limit value, and the lower limit value of the power intensity determined in accordance with the instructions for calculating or defining the power intensity lower limit value;

the optimum temperature with respect to the shortest predetermined wavelength and/or the longest predetermined wavelength is calculated by substituting the optimum power intensity, calculated in accordance with the instructions for calculating the optimum power intensity, in the shortest wavelength relational expression and/or the longest wavelength relational expression; and

the setting value is generated for all predetermined wavelengths, based on the optimum power intensity and the optimum temperature calculated with respect to the shortest predetermined wavelength or the longest predetermined wavelength.

23. (Original): The program product as claimed in claim 19, further comprising instructions for storing the setting value that is related to unique identification information allocated to the laser module.

24. (Currently Amended): A recording medium on which a program for causing a computer to generate such a setting value that causes laser light emitted from a laser module to

have a predetermined wavelength and satisfies a predetermined temperature range and a predetermined power intensity range, is recorded, the program comprising:

instructions for calculating an optimum power intensity setting range in which the power intensity can be adjusted while the predetermined wavelength is maintained, the optimum power intensity setting range being a continuous part of a predetermined power intensity variable range;

instructions for calculating an optimum temperature setting range in which the temperature can be adjusted while the predetermined wavelength is maintained, the optimum temperature setting range being a continuous part of a predetermined temperature variable range; and

instructions for generating the setting value based on both the optimum power intensity calculated in accordance with the optimum power intensity setting range calculating instructions and the optimum temperature setting range calculated in accordance with the optimum temperature calculating instructions, wherein

the laser module can be operated <u>in a normal operation</u> with the setting value that is located within both the continuous part of the predetermined temperature setting range and the continuous part of the predetermined power intensity setting range and has a power different from a center value of the predetermined power intensity variable range even when the laser module cannot operate within the predetermined temperature variable range at the center value of the predetermined power intensity variable range while the laser light is kept at the predetermined wavelength.